MEDICAL RADIATION DOSIMETRIST SERIES

Code No.	Class Title	Occ. Area	Work Area	Prob. Period	Effective Date
1184	Medical Radiation Dosimetrist I	02	444	6 mo.	06/27/94
1185	Medical Radiation Dosimetrist II	02	444	6 mo.	06/27/94

Promotional Line: 335

Series Narrative

Radiation therapy, as the name implies, is the therapeutic administration of radiation to destroy patients' cancerous cells. Many occupations are involved in planning and administering each treatment. The treatment planning team consists of the Radiation Oncologist, who prescribes the radiation dose; the Radiation Oncology Physicist who has overall responsibility for the technical aspects of machine calibration, treatment planning, and physics quality assurance; the Radiation Dosimetrist who performs the dose calculations and assists in making physical measurements on the radiation machine and on patients; and the Radiation Therapist who administers the prescribed dose. The calculations performed by the dosimetrist result in the radiation dosage distribution for each patient and the machine "on" time in each patient's treatment. In addition, the dosimetrist reviews the patient's chart to be sure the patient is being treated as prescribed by the radiation oncologist. Thus, the dosimetrist is an integral member of the radiation therapy team.

DESCRIPTIONS OF LEVELS OF WORK

Level I: Medical Radiation Dosimetrist I 1184

Employees at this level assist the radiation oncologists and the radiation oncology physicist in planning, calculating, and verifying the prescribed radiation treatment dosages administered to the patients. They work under direct supervision from a radiation oncology physicist.

A Medical Radiation Dosimetrist I typically –

1. plans, by means of computer and/or manual computation, a treatment technique that will deliver a prescribed radiation dose to a defined tumor volume for routine cases

2. presents the treatment planning computer output to the radiation oncology physicist

3. consults with and assists the radiation therapists in the planning and the production of moulds, casts, and other immobilization devices for use in treatment

4. advises radiation therapists in the implementation of the treatment plan (such as the correct use of immobilization devices, compensators, wedges, and field arrangements)

5. using procedures established by the radiation oncology physicist, performs dosage calculation for the patient's radiation therapy chart and verifies the mathematical accuracy of all calculations

6. assists the radiation oncology physicist in standard brachytherapy cases by performing manual and/or computer calculations for the dose distribution of these procedures

7. performs quality control procedures (such as periodic dose output checks, verification of laser alignment, and verification of light versus radiation field size) and checks the activity of radiation sources

8. performs other related duties as assigned

Level II: Medical Radiation Dosimetrist II 1185

Employees at this level perform complex computations and verifications of treatment plans. They coordinate simulation procedures and work with and provide more advanced assistance to the radiation oncology physicist and the radiation oncologists in treatment planning. They work under general supervision of a designated supervisor.

A Medical Radiation Dosimetrist II typically –

1. records the prescription directly from the radiation oncologist; plans, by means of computer or manual methods, the treatment delivery that will deliver a prescribed radiation dose to a defined tumor volume in simple and complex cases

2. coordinates with other departments patient treatment simulations using computed tomography (CT) and magnetic resonance imaging (MRI) when indicated to more definitively identify physical aspects of the tumor and its location when needed for radiation treatment planning

3. in simulation procedures, recommends to the radiation therapist the proper position of the radiation treatment beams as determined in the treatment plan

4. assists the radiation oncology physicist in the fabrication of compensating filters, custom shields, and the use of wedges and other beam modifying devices for use in radiation therapy

5. provides clarification and guidance to the radiation therapists on the correct use of immobilization devices, compensators, wedges, and field arrangements

6. provides assistance to the radiation oncology physicist regarding radiation protection, qualitative and quantitative machine calibrations, and quality assurance of the radiation therapy equipment, as needed

7. assists the radiation oncology physicist in the application of specific methods of dosimetry (ion chamber, thermoluminescent dosimetry, or film) for special clinical management, block cutting, and chart reviews

8. performs manual or computer calculations of the dose distribution for standard and complex brachytherapy treatment with sealed sources

9. stores, transfers, and accounts for numerous small radiation sources (such as needles, seeds, tubes, and applicators) that are inserted into a patient in the operating room or at the patient's bedside

10. teaches applied aspects of dosimetry (such as dose calculations) to residents and radiation therapy students, as assigned

11. participates in quality assurance and continuing education programs of the radiation therapy department (by assembling data and analyzing and developing criteria)

12. supports the radiation oncology physicist in the development and implementation of new techniques (such as radiosurgery and computed tomography based three-dimensional treatment planning)

13. performs other related duties as assigned

MINIMUM ACCEPTABLE QUALIFICATIONS REQUIRED FOR ENTRY INTO:

Level I: Medical Radiation Dosimetrist I 1184

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. (A) graduation from a medical dosimetrist program recognized by the American Association of Medical Dosimetrists

or

(B) graduation from an accredited program in radiation therapy and one year of on-the-job training as a medical radiation dosimetrist

or

(C) Bachelor's degree from an accredited college or university and one year of on-the-job training in medical radiation dosimetry under the supervision of a medical physicist or radiation oncologist

PERSONAL ATTRIBUTES NEEDED TO UNDERTAKE JOB

1. knowledge of standard radiation dosimetry methods

2. knowledge of commonly used radiation treatment techniques

3. knowledge of fabrication of beam modifying devices

4. knowledge of radiation oncology safety regulations

5. basic knowledge of physics and mathematics

6. basic knowledge of human anatomy

7. manual dexterity

8. communication skills

9. ability to calculate prescribed treatment doses accurately, either manually or using electronic equipment

10. ability to determine and achieve work priorities

11. ability to maintain accurate records and reports

12. ability to interact effectively and appropriately with health care facility personnel

13. ability to learn to perform more complex calculations

Level II: Medical Radiation Dosimetrist II 1185

CREDENTIALS TO BE VERIFIED BY PLACEMENT OFFICER

1. possession of the credentials required for Level I of this series

2. two years of work experience performing duties comparable to a Radiation Dosimetrist I

PERSONAL ATTRIBUTES NEEDED TO UNDERTAKE JOB

1. knowledge of routine and specialized applications of dosimetry

2. knowledge of the operation and maintenance of a wide variety of equipment used in a radiation dosimetry program

3. ability to coordinate and execute the overall treatment planning from prescription to dose delivery

4. ability to think critically and integrate previous knowledge for usual situations

5. ability to devise innovative procedures for unusual treatment situations

6. ability to organize and prioritize requests for treatment planning by the radiation oncologists

7. supervisory ability

Medical Radiation Dosimetrist I..... New
Medical Radiation Dosimetrist II..... New